THE NEWSLETTER OF THE U.S. SECTION, PIANC

Permanent International Association of Navigation Congresses

Winter 1997/98

Inside this issue:

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NOTES FROM THE SECRETARY

- After 95 years of being known as the Permanent International Association of Navigation Congresses, we are changing our name to the *International Navigation Association.* The English and French abbreviations-- PIANC and AIPCN-- which are based on the former name and were adopted in 1902, will be retained as symbols of the Association. The U.S. Section will continue to use printed stationary bearing the former name until our large supply has been exhauste

- In response to requests, the **Special Commission for Sport and Pleasure Navigation** will be upgraded to the status of a permanent commission and renamed. In the new name, the word *pleasure* will be replaced by the word *recreational.* The new name is the **Permanent Commission for Sport and Recreational Navigation.**

- The **Spanish Section,** which is guiding the development of the **South American Section**, is making working group reports available in Spanish beginning with PTC II, Working Group 30, *Approach Channels: A Guide for Design.*

- The final announcement and registration forms for the **29th International Navigation Congress,** which will be held in The Hague, The Netherlands, September 6-11, 1998, will be distributed in February 1998. A list of the titles and authors of the U.S. Section National Papers, which have been submitted for presentation at the Congress, was published in the Summer 1997 issue of the newsletter. Proposals for

PORTS '98 - REGISTER NOW

The next in the series of specialty navigation conferences jointly sponsored by the U.S. Section of PIANC and the ASCE will be **PORTS '98** held from March 8-11, 1998, in Long Beach, California. The previous opportunity to attend a **PORTS** conference was in 1995. Plan to be with us in Long Beach in 1998! The preliminary program and registration form is available. If you or a colleague would like additional copies of the program, contact the Office of the U.S. Section.

The U.S. Section, PIANC *Newsletter* is published quarterly by the U.S. Section of the Permanent International Association of Navigation Congresses. Send address corrections or other correspondence to Editor, U.S. Section, PIANC, ATTN: CEWRC-ZA, Casey Building, 7701 Telegraph Road, Alexandria, Virginia 22315-3868, or telephone (703) 428-6286. The *Newsletter* is an independent publication of the U.S. Section, PIANC and does not necessarily represent the view of the Army Corps of Engineers or any other agency of the United States Government.

the **30th International Navigation Congress,** which will be held in 2002, have been received from Australia and Portugal. A decision on the location is expected to be announced by the Secretariat by the end of 1997.

- Lock automation was the subject of the technical session sponsored by the U.S. Section at the September 1997 annual meeting of the National Waterways Conference, Inc. The presentation and demonstration, which was given by Colonel **Thomas J. Hodgini,** Commander/District Engineer, St. Louis District, was the first presentation of lock automation, made to a public audience. During the demonstration, **Colonel Hodgini** and electrical engineers from the St. Louis District, using computer technology and video links, ran through a complete operating cycle of the Melvin Price Lock on the Upper Mississippi River from the hotel conference room in Houston, Texas. Remotely operated locks are operational in several European countries. The St. Louis District obtained information from a PIANC technical bulletin, *Advanced and Automated Operation of Locks and Bridges*. In addition there are plans for site visits to supplement knowledge of the subject as applications of automated lock operations are studied. Two related articles on this subject appear elsewhere in this issue of the newsletter.

- In October, the U.S. Section held a very successful annual conference in Wilmington, North Carolina. The host for the conference was **Eric Stromberg,** Executive Director of the North Carolina State Ports Authority and a former National Commissioner. To mention just a few of the speakers, the program was opened by three speakers who set the theme-- **Kurt Nagle** (President of AAPA), followed by **Richard Dornhelm** (Vice-President, Moffat & Nichol Engineers) and then **Harry Cook** (President, NWC). Their respective presentations addressed *dredging and ports, recreational boating, and assuring the capacity of inland waterways* as the new century approaches. **Ms. Jennifer Irish,** gave a presentations on the Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) system that is used to survey coastal bathymetry, beaches, navigation channels and structures. She also presented the paper she wrote on *"Sensitivity of Channel Sedimentation Prediction to Wave-field Characteriation,* which was selected as the recipient of the 1997 Gustave Willems International prize. The luncheon talk on October 28 was given by **Michael A. Bragale,** Transition Planner, Panama Canal Commission. His subject was *The Panama Canal in Transition -- Steaming Toward the 21st Century.* On the final day of the conference, **Major General Russell L. Fuhrman,** Director of Civil Works and the President of the U.S. Section, presented an *Overview of the U.S. Army Corps of Engineers Civil Works Program.*

- **Don Waldon,** Commissioner from the Central Region, has been elected President of the Mississippi Water Resources Association. Congratulations!

- **Dr. G. Edward Dickey,** who served as U.S. National Commissioner of PIANC from 1987 to 1995, retired on December 31, 1997. Dr. Dickey was the Chief of Planning, HQUSACE.

- After 31 years of employment with the Corps of Engineers, **Anson G. Eickhorst,** has retired. He serves as the Principal U.S. Representative to the Permanent Technical Committee I, Inland Waterways and Ports,

and as the Co-Chairman of the U.S. Section Committee on Shallow-Draft Waterways and Ports. Although Mr. Eickhorst left the Corps, he intends to continue serving in both PIANC positions.

- Botanist **Hollis H. Allen**, who is with the Environmental Laboratory, WES, presented a technical paper on *Bioengineering with Geotextiles in Coastal and Riverine Environments of the United States* in Rheims, France, on October 7, 1997. The one-day conference on Geotextiles and Geomembranes in River and Maritime Works was sponsored by PIANC International with support from the International Geosynthetics Society. Since 1987, PIANC has published three working group reports on the use of geotextiles. The purpose of the conference was to present recent state-of-the-art applications in a rapidly changing field. Papers presented will not be published; however, copies of the eleven papers may be purchased for 1500 BF from the General Secretariat in Brussels.

- Information about the **Lisbon '98 World Exposition**, which will be held from May 22-September 30, 1998, on the **Oceans a Heritage for the Future** may be found on the Internet at **http://www.expo98.pt.** Information about a related conference, which is being sponsored by the Portuguese Section of PIANC June 7-9, 1998, on **Rehabilitation of Harbour Areas** may be found on the Internet at **http://www-dh.lnec.pt/npp/pianconf98.html.**

- **John P. Basilotto**, a Professor at the Texas A&M Transportation Institute, has been appointed Chairman of the Shallow-draft Committee of the U.S. Section. He succeeds **Charlie Lehman** who served for over two years and was the first Chairman of the Committee. **Anson Eickhorst** will continue to serve as Co-Chairman.

- Beginning in February 1998 the Texan Transportation Institute will open a clearinghouse on maritime information. **Mermaid** -- Maritime Economic Resources & Marine and Intermodal Directory -- is the first cyberguide to combined information related to both the maritime industry and NAFTA. The **Mermaid** search engine will allow you to seek information throughout the industry or within one of seven categories. Look for it in February at **http://maritime.tamu.edu.**

- The National Research Council (NCR) has published a book entitled *Contaminated Sediments in Ports and Waterways: Cleanup Strategies and Technologies*. **Dr. Robert M. Engler**, Chairman of the Permanent Environmental Commission, PIANC, served as the Corps of Engineers liaison with the NCR. Issues addressed in the book will be a major feature of a national symposium on contaminated sediments which will be held in Washington, D.C., May 27-29, 1998. A form, which may be used to order the book, can be found on page 14 of this newsletter.

- The U.S. Army Engineer District, St. Louis, has published Volume 1, Issue 1, of a newsletter entitled *Applied River Engineering Center*. Additional information is available online at *http:\\www.mvs.usace.army.mil/river/river.htm* or by telephoning the district office at (314) 263-4714.

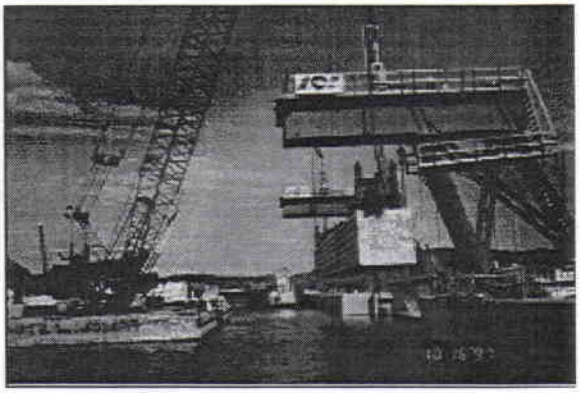
- "One of the greatest urban planning opportunities in the world," write the authors of *The New York Waterfront: Evolution and Building Culture of the Port and Harbor*, a new book edited by Kevin Bone and published by The Manacelli Press. The essays in the book treat past engineering

projects, the current situation and opportunities for the future of New York's shoreline.

- The Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin has published two reports of interest: *Port-Related State Programs and Federal Legislative Issues* and *State Programs for Financing Port Development.* The project manager for both reports was **Dr. Leigh B. Boske**, Professor of Economics and Public Affairs. Dr. Boske was a speaker at the 1997 meeting of the National Waterways Conference. Additional information about these reports is on page 12 of the newsletter.

Winfield Lock Partnership Promotes Design Innovations

by Jason C. Merritt, P.E.



Winfield Additional Lock Constuction: Upstream Guard Wall Beam Placement Al. Johnson/ Massman Construction Company (VSL Inc.)

On November 21, 1997, the Huntington District, U.S. Army Corps of Engineers, dedicated the new Winfield Main Lock, and in the process, cleared a navigation industry bottleneck from the Kanawha River in the heart of West Virginia's low sulphur coal region. This lock is the first of many future Corps projects which will strive to cut costs while still maintaining the high level of dependability and quality that the navigation industry requires.

The new main lock chamber will be 110 x 800 feet, while the existing 56 x 360 feet twin locks will remain active as auxiliary locks.

There are several innovative features in the new Winfield Main Lock which help to cut overall project costs. For example, a "direct connect" tainter gate has hydraulic operating cylinders attached to the gate instead of an operating system of electric motors with gears, line shafts, and cables. This change simplifies design, construction, and maintenance of the tainter gate, improving approach conditions. Also, a redesigned emergency closure system completely eliminates half of the necessary operating machinery by using a single leaf system instead of the double gate leaves.

While these changes provide substantial project savings, the most significant improvement at the Winfield project is the new lock upstream guard wall. Traditionally, the guard wall, which serves as an alignment and rubbing surface for tows entering the 800-foot long lock chamber, would have been built using consecutive, mass concrete monoliths founded on a continuous cellular sheet pile structure. To speed construction and save money, the Corps decided to build the wall using 52-foot-long precast concrete beams simply supported on circular sheetpile cells, cutting costs for the wall by about $10 million (compared to traditional wall designs). Plans and specifications were prepared and construction began on the project in December 1993.

During subsequent design work by the Corps on other navigation structures, it became apparent that even more economical guard

wall designs were feasible. However, changes to the Winfield design would be difficult since construction was underway. At about the same time, the Winfield additional lock contractor, Al Johnson/Massman Construction Company, inquired about submitting a Guard Wall Value Engineering (VE) Proposal. (The Corps' VE program allows contractors to submit improvements to project designs and share in the monetary benefits.)

Since both the contractor and the Corps wanted to reduce construction time and save money by improving the guard wall design, cooperation was the key. A partnering agreement was reached between designer, builder, owner, and user to everyone's benefit, including the taxpayers. The improved design was developed by the Corps, Al Johnson/ Massman and the navigation industry. The new guard wall incorporates prestressing strands into the precast concrete beam design. Prestressing allows the span length to increase to 112 feet, thus eliminating half the required num-ber of supporting cells.

Extensive collaboration and sharing of information between these partners resulted in a de-pendable, quality product with a cost savings of about $2.75 million. This technology has already been applied to future Corps projects and will produce even more cost savings for the government.

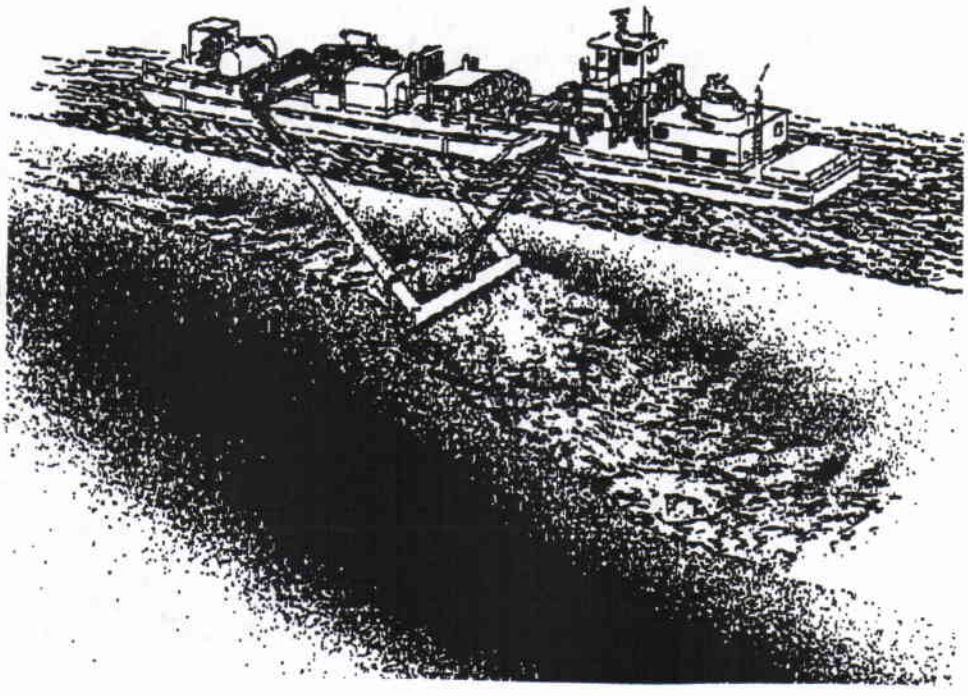
Jason C. Merritt is a structural engineer in the Design Branch of the Engineering Division at Huntington District. He can be reached @ (304) 529-5741.

New Orleans Poised to Use Innovative Water Injection Dredging Technology

by Edmond J. Russo, Jr.

Originally developed and used in Europe, the Water Injection Dredge (WID) recently entered the United States dredging market. The WID has largely gained work at private dock facilities located on the Mississippi.

Catching the eye of Corps dredgers, the New Orleans District (NOD) recognized the WID's potential for cost-effective employment along the New Orleans harbor wharves on the



Water Injection Dredge

1997 Annual Meeting
Wilmington, NC

From left: Mr. Frank L. Mach (Ports & Intermodal Officer, MarAd, Norfolk, VA), Ms. Virginia Pankow (Water Resources Support Center, Navigation Data Center, USACE), Mr. Mark Pointon (Water Resources Support Center, Institute for Water Resources, USACE) and Ms. Joan B. Yim (Vice President, Parsons, Brinckerhoff, Quade & Douglas).

From left: Mr. Mark D. Sickles (Executive Director, Dredging Contractors of America), Mr. Kurt J. Nagle (President, American Association of Port Authorities and Commissioner of the U.S. Section of PIANC), Ms. Cindy Marr, Wilmington Hilton, and Mr. Erik Stromberg (Executive Director, North Carolina State Ports Authority).

Exploring Beneficial Uses - From the left: Thomas R. Patin, *Moderator,* and *panel members* Ms. Sharon Lin (Environmental Engineer, USEPA), Dr. Mary Landin (Research Biologist), Dr. C.R. Lee (Soil Scientist, USACE, WES), and Dr. James R. Houston (Director, Coastal & Hydraulics Laboratory, USACE, WES)

Mr. Michael A. Brageles, Transition Programs Planner, Panama Canal Commission, speaking on *The Panama Canal in Transition: Steaming Toward the 21st Century*, at lunch on October 28, 1997, in Wilmington, North Carolina.

Major General Russell L. Fuhrman, Director of Civil Works and President of U.S. Section of PIANC presents gift to Mr. Erik Stromberg, Executive Director of the North Carolina State Ports Authority and retiring U.S. National Commissioner of PIANC.

Mississippi River.

Historically dredged by cutterhead dredges on average about two times per year, the New Orleans harbor work represents a relatively large amount of annual dredging work--generally between 1 to 3 million cubic yards of silts and sands. The WID's performance on non-Corps Mississippi River projects made its use practical for this New Orleans harbor work. The recent inclusion of the WID in bidding for New Orleans harbor dredging raised the prospect for saving money on the project.

The movement of the WID-generated slurry out of the dredging area is governed in large part by a density gradient. In general, this means that the heavier-than-water slurry causes an imbalance in static forces between the slurry and the surrounding water. This results in movement of the slurry away from its original location to a lower elevation in the waterway.

To generate the slurry, the WID uses twin articulated training arms that suspend a horizontal pipe over the dredging location. This pipe is outfitted with a series of nozzles that point towards the channel bottom. The nozzles discharge the water into the shoal material at high volume and low pressure. When this technique is used on a relatively high point along the bottom of the waterway, the slurry seeks a deeper elevation in the waterway. The result at the dredging location is an area cleared of shoal sediments. In general, the finer the sediments, the greater the WID's effect.

The WID uses only a fraction of the equipment and labor necessary by cutterhead dredges to accomplish essentially similar dredging jobs. During implementation, the result is likely to be more cost effective dredging as compared to conventional

Death of PIANC Members

Jake Redlinger

Jacob "Jake" F. Redlinger, Jr., died suddenly while on a business trip to New Orleans, Louisiana, from a heart attack. He was 54 years of age. An employee of the Corps of Engineers since 1966, Jake was a longtime, active member of the U.S. Section. His last official PIANC activity was serving as a member of the 1997 Nominating Committee. He is survived by his wife Fran and five children.

Herbert R. Haar, Jr., COL USA, (Ret.)

On December 30, 1997, Colonel Haar died of heart ailments in Washington, D.C. Colonel Haar's association with PIANC included service as a U.S. National Commissioner from January 1977 through December 1984. He was a Commissioner Emeritus of the U.S. Section. He had served for six years as an official observer to the London Convention representing the American Association of Port Authorities and the International Assocation of Ports and Harbors. Colonel Haar was a former Deputy Director of the Port of New Orleans and was a past Chairman of the National Waterways Conference, Inc. Immediate survivors are his wife, Dorothy, of Chevy Chase, Maryland, two children, Herbert R. Haar, III, and Susan H. Gordon.

St. Louis District Demonstrates Lock Automation

Major General Robert B. Flowers, Commander of the Lower Mississippi Valley Division of the Corps of Engineers, visited the St. Louis District last December. District

personnel briefed General Flowers on the status of lock automation in the St. Louis District and presented their vision to remotely operate a lock and dam.

As part of the presentation, the auxiliary lock at Mel Price Locks and Dam was remotely run through a complete operating cycle from the St. Louis District office. (Mel Price is a completely computerized facility, which is operated by a semi-automatic control system.) This was the first time a lock had been remotely operated in the United States.

Computer and video links to the locks were established for the demonstration. This permitted operation as well as visual and graphic feedback of the status of lock machinery during the demonstration. Constant communication with the onsite operator was maintained to assure safe operation during the demonstration.

Sensitive to the potential concerns of labor over this issue, the St. Louis District coordinated the demonstration with union officials. The union agreed to partner in the demonstration and participate in future studies of the concept.

The presentation focused on the potential for reduction in operating budgets by applying computer, surveillance and monitoring technologies at USACE locks and dams. The logical first application of this technology, where potentially significant savings in dollars and benefits to the towing industry would be realized, is at low-volume locks. There are approximately 100 plus low-volume locks in the country where this concept could be applied. The St. Louis District is working on a study to remotely operate such a lock, the Kaskaskia Lock and Dam. A system to control Kaskaskia Lock and Dam on the Kaskaskia River from Locks 27 on the Mississippi River could be operational in 2-3 years.

The St. Louis District's vision of future navigation on the inland waterways is one of control centers from which the Corps and industry would partner to achieve modern river management. One Corps operator would control a series of locks while the industry would participate in a coordinated traffic control system.

While significant operational and safety concerns remain to be addressed before this vision can be realized, we can achieve a more cost-effective method of operation by using modern, off-the-shelf technology. The St. Louis District's goal is to maintain 24 hours per day, seven days a week operation while significantly reducing operating costs. P.O.C. Mike Sommars (314) 331-8279

Computerization Likely New Key to Lock, Dam Control

by Randy Tardy

Instead of a human operator on the scene, those big locks on the McClellan-Kerr Arkansas River Navigation System in Arkansas and Oklahoma some day could open and close for boats and barges at the command of a computer-- located many miles away.

That is already starting to happen, to a degree, at a lock and dam on the Mississippi River near St. Louis, as demonstrated September 18 in Houston at the annual National Waterways Conference.

With the budget-balancing climate in Washington, the U.S. Army Corps of Engineers is downsizing and seeking ways to operate with fewer people and federal dollars for operation and maintenance of waterways. Remote lock operation are among things being studied.

"For now on the Arkansas River, though, the reality of computer-controlled locks is

probably a little bit off in the future," said Lee Bass, chief of the maintenance engineering section for the Corps' Little Rock District.

However, he said computers are going to be controlling the gates of the dam -- but not the lock--at David D. Terry Lock and Dam in southeast Pulaski County near Scott.

On the Mississippi River north of St. Louis, "lock automation" is in place at Melvin Price Lock and Dam. And in a pioneering demonstration in Houston, officials with the Corps' St. Louis District opened and closed a lock gate at Mel Price via computer hookup from the Doubletree Hotel/Post Oak--hundreds of miles from the river.

Because of the computer, "the process of opening and closing the lock gates can begin precisely at the same time, every time," said COL Thomas J. Hodgini, district engineer in St. Louis. "Whether the temperature is minus 20 degrees or plus 100 degrees, in wind, rain, sleet and snow, the computer does not forget or get distracted."

But at least for now, the computer is not a replacement for the human operator at the lock. Hodgini said there are "significant operational and safety concerns raised by our operating personnel which must be answered before we can proceed with remote operation."

He said the St. Louis District has been given the authority to study the remote operation of one of its smaller and less-busy structures, Kaskaskia Lock and Dam--about 60 miles south of St. Louis. "The study will assess the economic reliability of remote operations," Hodgini said.

Among questions the study hopes to answer:

- How does a remote system respond to emergencies?
- Can the facility be kept safe for the towing industry and Corps, operating personnel?
- Will remote control increase the risk of damage to the lock facility or to industry tows?
- How does the system deal with seasonal operating conditions, such as winter ice and high-water debris?

(Excerpted from the **Arkansas Democrat Gazette**, September 28, 1997.)

PIANC Member Receives O'Brien Award

Thorndike Saville, Jr., longtime PIANC member, recently received the Morrough P. O'Brien Award of the American Shore and Beach Preservation Association for services to the Association. Saville was also elected Director Emeritus. Interestingly enough, the four preceding awardees were also PIANC members-- Billy L. Edge, 1993; Orville T. Magoon, 1994; Robert L. Wiegel, 1995; and Richard B. Dornhelm, 1996.

Alaska to Host Sea Experts

A symposium of sea ice experts will be held in Anchorage, Alaska, on January 7-8, 1998 at the University of Alaska, Anchorage. They will attempt to develop a practical approach for operational ice observations in Cook Inlet and Prince William Sound to aid commercial navigation.

Ice along shipping routes is a prime safety concern to mariners in both Cook Inlet and Prince William Sound. Despite dangerous conditions of wind, tides, and ice, no proven automatic monitoring methods exist that are practical for near-time reporting. Too often,

ice reports are based on rare vessel observations and infrequent visual and infrared satellite imagery of low resolution.

A group of 10-12 specialists in operational ice observations for winter navigation will present summaries of their knowledge and experience on the subject. These presentations will be followed by a discussion to develop practical approaches to location of growlers in Prince William Sound and regular description of ice conditions along Cook Inlet shipping lanes.

Representatives of the marine industry in Cook Inlet and Prince William Sound (e.g., pilots, ship and tug captains, and shipping company and port representatives), as well as government agency representatives have also been invited to offer practical comments and suggestions for improvements.

Participants also plan to discuss the services available on waterways in other cold regions, such as icebreaker patrols, ice observation flight, shore observations, and reporting via cellular phone.

A report will be published to recommend actions that can be taken with present technology for practical ice observations in Cook Inlet and Prince William Sound.

POC is Dr. Orson P. Smith, Cold Regions Research and Engineering Laboratory, (907) 753-2632.

Symposium on Contaminated Sediments

The Transportation Research Board will host the National Symposium on Contaminated Sediments: Coupling Risk Reduction with Sustainable Management and Reuse in Washington, D.C., on May 27-29, 1998. A major feature of the symposium will be discussion of issues addressed in the NRC report *Contaminated Sediments in Ports and Waterways: Cleanup Strategies and Technologies*, published in March 1997. The program will include stakeholder responses to the study report, case study presentations, perspectives on project implementation, and examination of technologies and ongoing research and development. There will also be poster displays and exhibits which highlight a broad range of strategies and technologies.

For additional information, please contact Joedy Cambridge at (202) 334-2167 or FAX: (202) 334-2030.

Publications

Contaminated Sediments in Ports and Waterways examines management and technology issues and provides guidance to help officials make timely decisions and use technologies effectively. The book offers recommendations with a view toward improving decisionmaking, developing cost-effective technologies, and promoting the successful completion of clean-up projects. It assesses the state of practice and research and development status of both short-term and longer-term remediation methods. The volume also provides a conceptual overview for risk-based contaminated sediment management that can be used to develop plans to address complex, technological, political, and legal issues and the interests of various stakeholders. The book emphasizes the need for proper assessment of conditions at sediment sites and adequate control of contamination sources.

To order, please write to National Academy Press, 2101 Constitution Avenue, NW, Lockbox 285, Washington, D.C. 20055, or TEL: (202) 334-3313. Ask for ISBN 0-309-05493-1, 1997, 320 pp., $42.95

The following two publications are available from the Office of Publications, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin, P.O. Box Y, Austin, TX 78713-8925 or TEL: (512) 471-4218.

State Programs for Financing Port Development project directed by Leigh B. Boske

This reference manual provides a detailed description of state programs for port development. Using nine case studies that cover a spectrum of funding levels, the book provides a "menu" from which policymakers can select the types of financial assistance that would be most advantageous and appropriate for making infrastructure improvements and for marketing port activities. The case studies include complete descriptions of the port development programs in California, Florida, Louisiana, Minnesota, Oregon, and Wisconsin. Each case study provides background information, program specifics such as funding infrastructure improvement, equipment purchases, and dredging for new commercial navigation facilities, and a final section that outlines the lessons to be drawn. In addition, copies of the authorizing legislation for each program are included as appendices.

This report is a continuation of two previous LBJ School studies: **The Texas Seaport and Inland Waterway System and Port-related State Programs and Federal Legislative Issues**.

Special Project Report, 1997, 298 pp., $17.00, ISBN 0-89940-905-9.

Port-Related State Programs and Federal Legislative Issues project directed by Leigh B. Boske

This report provides an overview of state programs related to ports and an assessment of the economic impacts of three legislative bills on waterborne commerce. The overview includes port administration in various states, state agencies involved in port development and educational and funding programs, and trends in state port development and diversification. The economic assessment portion looks at the proposed Ocean Shipping Reform Act, efforts to significantly alter the Jones Act and the implications of the U.S. Court of International Trade ruling that found the Harbor Maintenance Tax to violate the export clause of the U.S. Constitution. Appendixes include profiles of port activities and state programs in 30 states.

Policy Research Project Report No. 117, 1996, 265 pp., $15.00, ISBN 0-89940-725-0.

New Individual Members

Auh, Jaehyuck	Leventhal, Roger
Baron, Joel H.	McGaha, William D.
Boire, Kenneth	McIntyre, Ted S.
Bostrom, Bengt	Moser, Mark S.
Camden, Sidney H.	Mundy, Michael W.
Conlon, Frank S.	Owen, Richard
Curl, Terry	Peddicord, Richard K.
Dodson, Paul	Pepper, Martin
Dunlop, Peter	Pianka, Robert
Greene, Robert H.	Rendon, Ricardo
Helberg, Davis	Rochen, George R.
Hussin, Dan	Rudy, Sandra
Irish, Jennifer	Sprague, Michael
Leubecker, Daniel W.	Toal, Michael
Lauridsen, Peter C.	Yim, Joan B.

New Corporate Members

U.S. Coast Guard
USACED, Portland
W.F. Baird & Associates, Ltd
Zietsman Lloyd & Hemstem, Inc.

INSIDE PIANC

8-11 Mar 1998	**Ports '98** POC: (800) 548-2723	Long Beach, CA
6-11 Sep 1998 POC: Mary Jane Robertson	29th International Congress PIANC (703) 428-6286	The Hague, The Netherlands

OUTSIDE PIANC

8-11 Mar 1998	**Ports '98** POC: Julie Taylor, ASCE TEL: (703) 295-6105	Long Beach, CA
10-13 May 1998	International Symposium on Advances in Bridge Aerodynamics, Ship Collision Analysis and Operation and Maintenance of Large Infrastructure Projects TEL: +45 85 97 27 FAX: +45 83 97 27	Lyngby, Denmark
11-15 May 1998	Second International Conference on The Pearl River Estuary in the Surrounding Area of Macao TEL: +853 343372 FAX: +853 578930	Macao
27-29 May 1998	National Symposium on Contaminated Sediments POC: Joedy Cambridge TEL: (202) 334-2167 FAX: (202) 334-2030	Washington, DC
27-30 May 1998	AWRA and Society for Range Management Specialty Conference on Rangeland Management and Water Resources TEL: (703) 904-1225	Reno, NV
15-19 Jun 1998	Pacific Congress '98 POC: PACON International P.O. Box 11568 Honolulu, Hawaii 96828 TEL: (808) 956-6163 FAX: (808) 956-2580	Seoul, Korea

20-23 Jul 1998	Transportation Research Board Summer Meeting POC: Joedy Cambridge TEL: (202) 334-2167 FAX: (202) 334-2030	Seattle, WA
28 Jun-2 Jul 1998	WODCON XV "Dredging into the 21st Century" POC: Larry Patella, WEDA Executive Director TEL: (503) 285-5521	Las Vegas, NV
22-26 Oct 1998	China Transpo '98 Water Transport POC: Mr. Chai Yingjie TEL: +86/10/65125185, 65242933 FAX: +86/10/65242955, 65125183	Beijing, China
15-17 Feb 1999	ICOMIA Third International Marina Conference POC: Ron Stone, IBFC, Chairman c/o NMMA Washington, Harbour 3050 K Street, NW, Suite 145 Washington, D.C. 20007 TEL: (202) 944-4985 FAX: (202) 944-4988	Ft. Lauderdale, FL
21-23 Apr 1999	International Congress on Maritime Technological Innovations and Research TEL: +34 3 401 79 32 FAX: (93) +34 3 401 79 23	Barcelona, Spain